

APPENDIX A – Derivation of Costs

The major shortcomings of OSHA's estimates of costs and benefits were discussed in Chapter II; however, those shortcomings were presented from the point of view of the cost of the rule to the national economy. In this section, the focus is on the costs a firm faces under different conditions of risks. The estimates of costs have been summarized in Tables A-1 and A-2 that respectively correspond to a low-hazard and a high-hazard firm. Tables A-3, A-4 and A-5 presents the costs and benefits of the Ergo Program based on the data in Tables A-1 and A-2 and on the benefits estimates in the Appendix B.

Table A-1. OSHA & PP&E's Low Estimates of Ergo Program (15 Employee Firm)

PROGRAM ELEMENT	PP&E's Estimates of Costs				OSHA's Estimates of Costs			
	Time Estimate (hrs)	Cost Estimate @ \$24.42/mgmt. , \$15.93/empl.	Cost of Materials, Equip., Consult.	Total Cost(15 Employees)	Time Estimate (hrs)	Cost Estimate @ \$24.42/mgmt. , \$15.93/empl.	Cost of Materials, Equip., Consult.	Total Cost(15 Employees)
<u>BASIC PROGRAM</u>		24.42	15.93					
Initial Training of Manager	8	\$195.36	\$500.00	\$695.36	2	\$48.84		\$48.84
Provide Management Leadership	16	\$390.72	\$750.00	\$1,140.72	1	\$24.42		\$24.42
Employee Participation	15	\$238.95		\$238.95	1	\$24.42		\$24.42
Identification of WMSDs & Hazards	16	\$390.72		\$390.72	0.25,0.25	\$10.09		\$10.09
Provide Info. About Signs & Symptoms	15	\$238.95		\$238.95	0.5,5	\$91.86		\$91.86
Total Basic Program	70	\$1,454.70	\$1,250.00	\$2,704.70				\$199.63
<u>TRIGGERED PROGRAM</u>								
Full Management Training	4	\$97.68		\$97.68	4	\$97.68		\$97.68
Problem Job Analysis	4	\$97.68		\$97.68	1,1	\$40.35		\$40.35
Identify and Evaluate Controls	16	\$390.72	\$1,000.00	\$1,390.72	1,1	\$40.35	\$1000 (10% of	\$140.35
Implement Controls	1	\$24.42	\$5,000.00	\$5,024.42	1,1	\$40.35	\$2,400.00	\$2,440.35
Full Employee Training	3	\$71.97	\$500.00	\$571.97	2,3	\$96.63		\$96.63
Provide Empl. Access to HCP Treatment	4	\$97.68	\$500.00	\$597.68	1	\$24.42		\$24.42
Program Evaluation	2	\$48.84		\$48.84	0			\$0.00
Medical Removal Protection			\$0.00	\$0.00	0		\$1,036.00	\$1,036.00
Hiring & Training of Replacement Worker	4	\$97.68		\$97.68	0			\$0.00
Total Triggered Program	38	\$926.67	\$7,000.00	\$7,926.67				\$3,875.78
TOTAL FULL PROGRAM	108	\$2,381.37	\$8,250.00	\$10,631.37				\$4,075.41

Table A-2. OSHA & PP&E's High Estimates of Ergo Program (15 Employee Firm)

PROGRAM ELEMENT	PP&E's Estimates of Costs				OSHA's Estimates of Costs			
	Time Estimate (hrs)	Cost Estimate @ \$24.42/mgmt. , \$15.93/empl.	Cost of Materials, Equip., Consult.*	Total Cost(15 Employees)	Time Estimate (hrs)	Cost Estimate @ \$24.42/mgmt. , \$15.93/empl.	Cost of Materials, Equip., Consult.	Total Cost(15 Employees)
<u>BASIC PROGRAM</u>								
Initial Training of Manager	8	\$195.36	\$500.00	\$695.36	2	\$48.84		\$48.84
Provide Management Leadership	16	\$390.72	\$750.00	\$1,140.72	1	\$24.42		\$24.42
Employee Participation	15	\$238.95		\$238.95	1	\$24.42		\$24.42
Identification of WMSDs & Hazards	16	\$390.72		\$390.72	0.25,0.25	\$10.09		\$10.09
Provide Info. About Signs & Symptoms	15	\$238.95		\$238.95	0.5,5	\$91.86		\$91.86
Total Basic Program	70	\$1,454.70	\$1,250.00	\$2,704.70				\$199.63
<u>TRIGGERED PROGRAM</u>								
Full Management Training	4	\$97.68		\$97.68	4	\$97.68		\$97.68
Problem Job Analysis	4	\$97.68		\$97.68	1,1	\$40.35		\$40.35
Identify and Evaluate Controls	16	\$390.72	\$5,000.00	\$5,390.72	1,1	\$40.35	\$1000 (10% of	\$140.35
Implement Controls	4	\$97.68	\$50,000.00	\$50,097.68	1,1	\$40.35	\$2,400.00	\$2,440.35
Full Employee Training	10	\$239.89	\$500.00	\$739.89	2,3	\$96.63		\$96.63
Provide Empl. Access to HCP Treatment	4	\$97.68	\$500.00	\$597.68	1	\$24.42		\$24.42
Program Evaluation	8	\$195.36		\$195.36	0			\$0.00
Medical Removal Protection			\$3,120.00	\$3,120.00	0		\$1,036.00	\$1,036.00
Hiring & Training of Replacement Worker	20	\$488.40		\$488.40	0			\$0.00
Total Triggered Program	70	\$1,705.09	\$59,120.00	\$60,825.09	\$3,875.78			
TOTAL FULL PROGRAM	140	\$3,159.79	\$60,370.00	\$63,529.79	\$4,075.41			

Table A-3. Potential Costs and Benefits of the ERGO Program For High and Low Risk Firms					
Assumptions: (1) MRP Costs are high due to an Increase in MSD claims of 157%, (2) PP&E's Hazard Control Costs: low-risk15 employee firm = \$5,000; High-risk 15 employee firm = \$50,000					
COSTS	Costs Based on PP&E's Estimates			Costs Based on OSHA's Estimates	
	Low-Risk 249 Employee Firm	High-Risk 249 Employee Firm		Low-Risk 249 Employee Firm	High-Risk 249 Employee Firm
1. The Basic Program	\$44,898.02	\$44,898.02		\$3,313.86	\$3,313.86
2. The Phase II Program					
- Hazard Control Costs	\$106,491.32	\$921,107.44		\$42,839.62	\$42,839.62
- MRP Costs Due to Increase in MSDs	\$1,740.00	\$104,640.00		\$8,620.00	\$517,360.00
- Other Costs	\$25,091.33	\$36,802.20		\$4,300.73	\$4,300.73
Total Phase II Costs	\$133,322.65	\$1,062,549.64		\$55,760.35	\$564,500.35
Total (Basic + Phase II) Costs	\$178,220.67	\$1,107,447.66		\$59,074.21	\$567,814.21
BENEFITS	There are no benefits because there is a net increase in the number of MSDs due to much higher claims				
Net Present Value of Benefits (PP&E)	\$ 0	\$ 0		\$ 0	\$ 0
Net Present Value of Benefits (OSHA)	\$0	\$0		\$0	\$0
Value /MSD	\$3,120.00			\$22,545.00	
MRP Cost/MSD	204			342	

Table A-4. Potential Costs and Benefits of the ERGO Program For High and Low Risk Firms

Assumptions: (1) MRP Costs= 0, (2) PP&E's Hazard Control Costs: low-risk15 employee firm = \$5,000; High-risk 15 employee firm = \$50,000

COSTS	Costs Based on PP&E's Estimates			Costs Based on OSHA's Estimates	
	Low-Risk 249 Employee Firm	High-Risk 249 Employee Firm		Low-Risk 249 Employee Firm	High-Risk 249 Employee Firm
1. The Basic Program	\$44,898	\$44,898		\$3,314	\$3,314
2. The Phase II Program					
- Hazard Control Costs	\$106,491	\$921,107		\$42,840	\$42,840
- MRP Costs	\$0	\$0		\$0	\$0
- Other Costs	\$25,091	\$36,796		\$4,301	\$4,301
Total Phase II Costs	\$131,583	\$957,903		\$47,140	\$47,140
Total (Basic + Phase II) Costs	\$176,481	\$1,002,801		\$50,454	\$50,454
BENEFITS					
Net Present Value of Benefits (PP&E)	\$2,260	\$135,600		\$2,260	\$135,600
Net Present Value of Benefits (OSHA)	\$14,340	\$860,550		\$14,340	\$860,550

**Table A-5. Potential Costs and Benefits of the ERGO
Program For High and Low Risk Firms**

(PP&E's Hazard Control Costs = \$40,000/15 employees for high-risk firm; \$5,000
/15 employee for low-risk firm, No Increase in MSD claims)

COSTS	Costs Based on PP&E's Estimates	
	Low-Risk 249 Employee Firm	High-Risk 249 Employee Firm
1. The Basic Program	\$44,898	\$44,898
2. The Phase II Program		
- Hazard Control Costs	\$106,491	\$755,107
- MRP Costs	\$0	\$0
- Other Costs	\$25,091	\$36,796
Total Phase II Costs	\$131,583	\$791,903
Total (Basic + Phase II) Costs	\$176,481	\$836,801
BENEFITS		
Net Present Value of Benefits (PP&E)	\$2,260	\$135,600
Net Present Value of Benefits (OSHA)	\$14,340	\$860,550

Table A-6. Occupational Injuries and Illness Incidence rates in Manufacturing Industries

(Based on Injuries and Illnesses cases With Days Away From Work)

Establishment Size Group	Mean Incidence Rate	1st Quartile 25% of estab. with rate lower than:	2nd Quartile 50% of estab. with rate lower than:	3rd Quartile 75% of estab. with rate lower than:	4th Quartile (estimate*) mean of highest 25%
1--10	1.50	0.00	0.00	0.00	6.00
11--49	2.80	0.00	0.00	0.40	10.80
50--249	3.20	0.00	0.20	0.50	12.40
250--999	2.30	0.10	0.20	0.30	8.60
1000+	1.90	0.00	0.10	0.20	7.30

Source: BLS -- Occupational Injury and Illness Rates of Rates Away From Work Cases By Quartile.

* The BLS data provides the data for only three quartiles. The fourth quartile rates are estimated by assuming that rates for each quartile occur at its mid-point and by using the mean incidence rate given in the tables.